U.S. Department of Transportation
United States Coast Guard

Commander
Eighth Coast Guard District
Hale Boggs Federal Building

501 Magazine Street
New Orleans, LA 70130-3396
Staff Symbol: (moc-1)
Phone: (504) 589-2455
FAX: (504) 589-4999

16711/ELECTRICAL
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From: Commander, Eighth Coast Guard District
To: Distribution

Subj: POTENTIAL PROBLEM WITH 24V DC POWER SYSTEMS ABOARD CASINO VESSELS OR OTHER LARGE PASSENGER VESSELS

Ref: (a) 46 CFR 62.30-5 (Automated Vital Systems)
(b) American Bureau of Shipping (ABS) Rules for Steel Vessels 35.23 (excitation)

1. Over the past several months, marine inspectors from MSO New Orleans discovered improper electrical installations aboard 3 casino vessels which had similar arrangements where the propulsion motor excitation and ship's service diesel generator governor control were supplied by a single bank of batteries. Inspectors found that disconnection of one of the battery leads caused the vessels to lose propulsion and electric power, contrary to the requirements in references (a) and (b).

2. OCMIs should have marine inspectors pay particular attention to the inspection of 24V DC power systems (back-up battery banks) when conducting inspections aboard casino vessels or large passenger vessels employing the above electrical arrangement.

3. Enclosure (1) is provided to assist your marine inspectors in becoming familiar with this type of electrical arrangement so that it may be identified and corrected immediately.

4. Questions regarding this matter may be referred to LCDR Mike Brown at (504) 589-6743.

C. T. DESMOND
By direction

Encl: (1) MSO New Orleans guidance for inspection of 24V DC systems

Dist: All Eighth District MSOs, MSU, and MSDs
COMDT (G-MOC-1)
MSC-2

PROBLEM DEFINITION: Loss of propulsion and ship's service electrical power due to no backup system available for 24VDC distribution system on large passenger (casino) vessels. Our intent here is to make other OCMI's aware of the dangerous situation that may be present in their zones.

BACKGROUND: This was recently discovered by MSO New Orleans inspectors when Boomtown Belle II lost power on April 21, 1998 (see MI98014086). Although passengers were on board, the vessel was fortunately dockside at the time. A single bank of batteries was the only power source available for the 24VDC distribution panel. The panel included critical branch circuits for propulsion motor excitation and SSDG governor control. When the 24 VDC power source was interrupted (i.e. loss of battery charging alternator), the propulsion motors and the SSDG's shut down due to loss of field excitation and governor control respectively. Two other large passenger vessels (LADY OF THE ISLE, O.N. D1020786 and SHREVE STAR, O.N. D1028290) in the MSO New Orleans zone were subsequently found to have the same problem. The affected vessels were built and outfitted with this 24VDC distribution systems at Bender Shipyard in Mobile, AL and the now defunct Service Marine in Morgan City, LA.

APPLICABLE REGULATIONS: 46 CFR 62.30-5 (automated vital systems) and ABS Rules for Steel Vessels 35.23 (excitation).

SOLUTION: The vessel owners resolved this problem by installing an additional battery charger and bank of batteries. This alone would not have solved the problem due to the governor's reliance on and sensitivity for DC control power. Dual input isolators, consisting of several isolation diodes, were therefore also installed for both the battery chargers and battery outputs. For the charging system, the isolator allows the batteries to be charged by their respective alternators but also automatically switches power source to the available alternator if the other loses power, i.e. available alternator charges both battery banks. For the battery outputs, the isolator automatically selects the battery bank with higher power output. The switching takes place so fast that the governor does not sense loss of control power. The same is true for the propulsion motor excitation.

If you have any questions concerning this issue, please feel free to contact me at the New Construction Section of MSO New Orleans, (504) 589-4215.

CWO2 M. D. PLEWINSKI
MSO NEW ORLEANS